SUMMARY OF WORK

1.0 GENERAL

1.1 SCOPE

The selected Contractor shall furnish all labor, product, equipment, materials, and supervision for the demolition and installation associated with the HVAC and Roof Replacement Project at Redmond (RDM) Airport Traffic Control Tower (ATCT) located in Redmond, Oregon. "Demolition" includes but is not limited to removing and disposing of the existing Roof-top HVAC units, associated ductwork, and the pliable and rigid insulation layers from the roof of the ATCT. "Installation" includes but is not limited to providing and installing two new 6-ton Trane Roof-top HVAC units onto new curbs with new roof covered by rigid insulation and PVC for the ATCT. Prior to "installation," all of the equipment and material shall be reviewed and accepted by a FAA representative.

The following items are a summary of the project and are provided solely for the purpose of describing the general nature of the work. The Contractor is responsible for accomplishing all items of work identified in the applicable drawings, specifications, and provisions of the contract.

A. General

1. The Redmond Airport Traffic Control Tower (ATCT) is an active operational facility which runs 7 days a week from 6am to 8pm.
2. All work shall be coordinated with the FAA and be accomplished on a "Not to interfere with FAA operations" basis.
3. Construction material shall be stored only in FAA approved areas.
4. Construction staging shall be allowed only in the FAA approved areas.
5. The Contractor shall provide all temporary services required for construction.
6. The Contractor shall clean up and restore the site grounds to its original condition after the work has been performed.

B. Demolition

1. Remove and properly dispose of existing roof-top units from the roof of the ATCT. Provide certificate of disposal for refrigerant.
2. Remove and properly dispose of all existing rooftop ductwork.
3. Remove and properly dispose of pliable and rigid insulation layers.
4. Remove and properly dispose of HVAC unit roof curbs and duct supports.

C. Installation

Rigid Insulation and PVC Roof

1. Replace or patch holes in existing metal roof deck with material matching in weight, thickness, quality, and makeup. Fasten new material in place as required.
2. Install new HVAC unit roof curbs (14" Standard) onto roof per manufacturer's instructions.
3. Cut new roof penetrations as required to accommodate new ducting installation.
4. Top metal roof deck with rigid insulation matching existing conditions and plan set.
5. Install PVC roof with raised surface mats on top per manufacturer's specifications.

New Air Conditioner

1. Provide and install two new Trane 6-Ton Precedent Roof-top Unit (Model # WSC072E3RKA), or FAA approved equal, in the same location as the existing units. The characteristics of the new air conditioning unit are as follows:
   a. Commercial application
   b. 6 tons nominal (one stage)
   c. Heat Pump
   d. Down-Flow – Medium Static Blower
   e. R-410a Refrigerant
   f. Return Air Smoke Detector
   g. 208-230 volt / 60 hertz / 3 phase
   h. 27 kW Electric Heater Kit
   i. Single Point Electrical Disconnect Kit
   j. Economizer Kit with Dry Bulb Control
   k. Barometric Relief
   l. Thermostat Control – Digital Programmable
2. Install Flashing and seal Unit to existing curb/ducting per manufacturer's specifications.

Ducting

1. Provide and install all associated ducting, connections, and transitions for tying the new HVAC units into the existing system. New ducting shall be installed within the drop ceiling of the cab. All ducting shall be insulated.

Electrical

1. All electrical work shall comply with the latest revision of FAA specification FAA-C-1217f, "Electrical Work, Interior".

2. All equipment grounding shall comply with the latest revision of FAA standard FAA-STD-019e, "Lightning Protection, Grounding, Bonding and Shielding Requirements for Facilities".
3. All bonds shall be exothermic welds or FAA approved pressure connections.
4. Provide and install properly sized circuit breakers and connecting wires for new air conditioner unit, control, and fan.
5. Provide and install properly sized disconnect switch for new air conditioning unit.
6. Electric related materials the Contractor disconnects or connects will be updated to meet all current codes specified as applicable documents in this contract.

Testing and Balancing

1. Perform an operational check of all newly installed equipment.
2. Confirm the cooling capacity is 6-tons.
3. Confirm proper operation of economizer boxes/dampers.
4. Confirm compressor operation, staging, and duty shifting in the controls and air conditioning unit.
5. Balance duct vents for even room air distribution.

1.2 APPLICABLE DOCUMENTS

A. Applicable Documents - All FAA, Military, Federal, and industrial codes or standards, specifications, and contract drawings referenced in this and the following divisions form a part of this specification and are applicable only to the extent they were used as a basis of this design. All references to codes, standards, specifications, and construction drawings refer to the latest editions (and any supplements) in effect on the date of the contract.

B. Applicable Publications - The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by basic designation only.

1. Code of Federal Regulations (CFR):
   a. OSHA General Industry Safety and Health Standards (29 CFR 1910), OSHA Construction Industry Standards (29 CFR 1926). OSHA 2202 is a condensed version of 29 CFR 1926. Each is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402.
   b. National Emission Standards for Hazardous Air Pollutants (40 Cfr, Part 61).
2. SMACNA Handbooks: Sheet Metal and Air Conditioning Contractors' National Association
3. Federal Standard (313A): Preparation and the Submission of Material Safety Data Sheets.
4. FAA Specification 1217f: Electrical Work, Interior.

5. FAA Standard 019e: Lightning and Surge Protection, Grounding, Bonding, and Shielding Requirements for Facilities and Electronic Equipment.
6. List of Drawings: These listed drawings are for information only, expressing existing conditions and construction details. The contractor shall verify dimensions, locations, and sizes on the applicable drawings prior to installation.
   a. NMD-00000-M014
   b. NMD-601-41663-A2.2
   c. NMD-601-41663-A4.3
   d. NMD-601-41663-A5.5
   e. NMD-601-41663-A7.2
   f. NMD-601-41663-E4.2
   g. NMD-601-41663-M2.2
   h. NMD-601-41663-S2.1
   i. NMD-601-41663-S4.3

1.3 DEFINITIONS

A. Federal Aviation Administration (FAA) - The terms "Federal Aviation Administration" (FAA) and "government" as used herein denotes the "owner".

B. Project Engineer (PE) - The term "Project Engineer (PE)" as used herein denotes the "Government's representative".

C. Contracting Officer (CO) - The term "Contracting Officer" (CO) as used herein denotes the person designated to act for the Government in the performance of this contract.

D. Resident Engineer (RE) - The term "Resident Engineer" (RE) as used herein denotes the representative of the Contracting Officer at the job site. The term is synonymous with the FAA terms "Contracting Officer's Technical Representative" (COTR).

E. Contractor and Subcontractor - The term "Contractor" as used herein denotes the firm who will perform and complete the work required by the Contract. The term "subcontractor" as used herein denotes the person or firm retained by the Contractor to perform a particular unit of work required by the Contractor. Subcontractors shall be required to meet all specifications required of the Contractor.

1.4 CONSTRUCTION CONDITIONS

A. Pre-construction Conference - The Contractor shall attend a pre-construction conference at the time and location specified by the RE. Requirements for material disposal, security and safety will be discussed. Use of facility restrooms, water, and

power will also be discussed. Compliance with these procedures while on site is mandatory.

B. Submittals - Samples, certificates, reports, catalog cuts, letters, shop drawings, maintenance and operations manuals, manufacturers installation procedures, etc. required shall be submitted to the RE.

C. Conflict Resolution - The Contractor shall meet standards, specifications, and drawings as specified herein. The specifications and drawings shall rule in all cases. Specifications shall govern over drawings. If any conflict should exist between site drawings (location-specific drawings) and standard drawings (drawings not referring to a particular location), the site drawings shall govern. In the event of dimensional discrepancies or omissions, the Contractor shall field verify and correct the information, and notify the RE. No work shall be done until agreement has been made with the RE.

D. Inspection

1. Access for Inspection - The Contractor shall allow the RE complete access to all portions of the work. Portions of the work buried, enclosed, or disguised, shall be inspected by the RE before being obscured by the next operation of the Contractor. In all cases, the RE shall be informed accordingly and given access to the work. Work obscured before inspection and acceptance by the RE, may, at the option of the RE be opened for inspection at no additional cost to Government.

   The RE will inspect all work in progress up to completion and final Contractor's Acceptance Inspection (CAI) including all materials, tools, and equipment. Such inspection may extend to all or a part of the work for the preparation, fabrication or manufacture of the materials to be used. The RE will notify the Contractor of any non-compliance with the contract specifications and/or drawings, and may reject workmanship or materials accordingly.

2. Contractor's Acceptance Inspection (CAI) - After substantial completion of all the Contractor's work, a CAI will be conducted between the Contractor and Government. The RE will review the contract documents and verify that the Contractor has completed all required work. If work remains to be completed, an itemized list will be prepared, and the contractor at no additional cost to the Government shall complete the remaining tasks correctly. A Joint Acceptance Inspection (JAI) requires FAA personnel to be present. It may be held concurrently with the CAI.

E. Project Coordination - The Contractor shall be required to coordinate his/her construction activities with the FAA through the RE. All work which affects the Redmond ATCT facility shall be coordinated and approved by FAA personnel through the RE at least forty-eight (48) hours in advance of the scheduled work. Failure to notify and obtain the necessary approval may result in a rescheduling of the work. If weather conditions or aircraft operations preclude a scheduled shutdown of an existing FAA facility, the Contractor shall reschedule the work. The Contractor will be required to coordinate all power shutdowns of existing facilities with the FAA, through the RE, seventy-two (72) hours in advance. Each shutdown shall be limited and off-peak hours shall be required for testing or power shutdowns, with the facility placed back in service at the end of the workday, or as stipulated by the FAA.

F. Layout of Work - The Contractor shall field verify measurements and work from the established base lines and bench marks indicated on the drawings and shall be responsible for all measurements in connection therewith. The Contractor shall furnish, at his/her own expense, all stakes, templates, platforms, equipment, tools, materials, and labor as may be required in laying out any part of the work from the base lines and bench marks previously established. The Contractor will be held responsible for the execution of the work as detailed in the plans and specifications. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other marks previously established until authorized to remove them.

G. Permits, Inspection, Licenses, Certificates - The Contractor shall obtain and pay fees for permits, inspections, licenses, or certificates required by Federal, State and City/Town officials as necessary to perform the work, prior to starting construction, and in a timely manner to avoid delays in starting the job. The Contractor shall submit evidence that they have obtained all required permits, inspections, licenses, and/or certificates.

H. Compliance with Local and Other Codes - The Contractor shall comply with local and other codes and standards. Where the requirements of the specifications and drawings exceed those of the local or other codes, the Contractor shall comply with the requirements of the specifications and drawings.

I. Stop Work Orders - When the Contractor or subcontractors are notified by the RE of any non-compliance with the provisions of the contract and the action(s) to be taken, the Contractor shall correct the unsafe or unhealthy condition. Life threatening or other serious violations shall be corrected immediately. Non-serious violations shall be corrected within 24 hours of the non-compliance notice. The RE may stop the work with a “stop work order” if the Contractor fails to comply promptly with all or any part of the work being performed. When, in the opinion of the RE, satisfactory corrective action has been taken to correct the unsafe and unhealthy condition, the

Contractor may resume work. The Contractor shall not be allowed any extension of time or compensation for damages by reason of or in connection with such work stoppage.

J. Protection of Existing Vegetation, Improvements and Structures - The Contractor shall take all precautions necessary to protect the existing facilities, equipment, buildings, foundations, vegetation, etc., during construction. Any areas damaged by the Contractor or any subcontractors, shall be repaired or replaced to their original conditions by the Contractor at no additional cost to the government. Repairs shall be approved by the RE and shall match to original finish. The Contractor shall provide all temporary covers, enclosures, barricades, etc., required to protect the existing facilities.

K. Schedules

1. Schedule **-** The Contractor shall, within ten (10) calendar days from date of award of contract, submit to the CO for approval a practical project schedule. The schedule shall show the order in which the Contractor proposes to carry out the work, the date on which he/she will start the several salient features (including procurement of materials, plant and equipment) and the contemplated dates for completing the work. The schedule shall be in the form of a progress chart of suitable scale to indicate the approximate percentage of work scheduled for completion at any time. The Contractor shall enter on the chart the actual progress at such intervals as directed by the CO. The project schedule shall include a milestone schedule for payments. The milestones should be stated with requested reimbursement for each milestone (based upon actual costs, overhead and profit).

2. Progress Schedule **-** The Contractor, if requested by the CO, shall submit a progress schedule at such intervals as directed by the CO. If the Contractor fails to submit a progress schedule within three (3) business days, the CO may withhold approval of progress payment estimates until the Contractor submits the required progress schedule.

3. Hours of Work – Shall be approved by the RE, all work shall be accomplished during normal business hours specified by the RE. No work is allowed on weekends and Federal holidays unless approved by the RE in writing.

L. Site Access - Access to the site will be via a pre-determined route identified and agreed upon at the pre-construction conference.

M. Special Permits - The Contractor shall obtain and submit evidence of all necessary permits for the work. The Contractor shall abide by all requirements dictated by the city, state, federal, airport authority or municipality for such permits without any additional cost to the government.

N. Waste Disposal - The Contractor shall provide on-site containers for the collection of construction waste materials, debris and rubbish and their daily removal from the site. Any spillage on access and haul routes shall be cleaned up immediately. All spoil, waste and debris removed from the work site and not specified for reuse or identified as salvageable items, or identified as contaminated contents shall be disposed of off site in areas authorized by the applicable County, State and/or Local agencies and in accordance with current rules and regulations governing the disposal of such waste. The Contractor, at no additional cost to the government, shall pay disposal fees and miscellaneous charges. Copies of all documentation of the disposal of any fuel or hazardous wastes will be submitted to the RE.

O. Cleanup - The work site shall be kept clean and orderly during the progress of work. After final inspection, but before final acceptance of the work, all exterior surfaces of the equipment shall be cleaned of dirt, mud, or oil accumulations. All debris shall be removed from the general site area.

P. O & M - Upon completion of the facility modifications, the Contractor shall provide operation and maintenance instructions for all new equipment. This information will then be retained by the RE (and the FAA) and used to reflect the as-constructed conditions.

Q. Warranties - Documentation for the warranties shall be provided to the government upon completion of the project. Warranty shall provide for repair or replacement of the complete roofing system, including insulation and flashings, if leaking is caused by defects in materials or workmanship.

1.5 SAFETY

OSHA and FAA safety standards will be enforced. In keeping with such standards, the Contractor shall, at a minimum, provide:

A. Safety Plan - The Contractor shall have and submit a Safety Plan with the purpose of maintaining a safe working environment for construction workers employed on site. The safety plan shall require a statement that the current Occupation Safety and Health Act (OSHA) regulations on safety in the construction industry, OSHA Title 29, Part 1910 and Part 1926, as well as FAA safety regulations are followed. The plan will be used by the RE to insure that the work is accomplished in accordance with accepted safety practices.

B. Trained Personnel - Personnel shall be properly trained in the usage of all equipment for which they will be required to use during the Contract. The RE may request documentation or other evidence of training at any time. Personnel without adequate training will be prohibited from using such equipment.

C. Lock Out / Tag Out – The Contractor shall employ and detail lock-out / tag-out procedures to employees working with and around electrical systems. When accessing an electrical panel, a FAA technician must be present prior to interrupting and energizing the breakers.

D. Material Safety Data Sheets - The Contractor shall have Material Safety Data Sheets (MSDS) conforming to Federal Standard 313A, written by the manufacturer, for all materials containing chemicals or other substances which may pose a hazard. One (1) copy of each MSDS shall be submitted to the RE and one (1) copy of each MSDS shall be kept on file at the job site at all times. The Contractor and subcontractors will be prohibited from handling any material which does not have an applicable MSDS on file at the site until such MSDS arrives on site.

E. Safety Equipment - The Contractor shall provide safety equipment including, but not limited to, a Red Cross approved First-Aid kit and the appropriate number of annually inspected, charged fire extinguishers with the proper NFPA rating.

F. HAZCOM Program - The Contractor shall have a hazard communications (HAZCOM) program. The Contractor and each subcontractor shall submit a copy of their HAZCOM program as well as a copy of their current OSHA 200 form, if requested.

G. Work Practices - Although OSHA regulations and the Contractor's Safety Plan will usually apply, the RE may consider certain work practices to be unsafe in accordance with Public Law 91-596, Part 5a and 5b. The RE may stop any operation which is in violation of the OSHA standards or fails to comply with the safety plan or other safe work practices.

H. Designated Foreman - When any construction activity is conducted at the site, the presence of a designated, competent contractor’s foreman is required at the job site. The foreman must be qualified and capable of organizing and coordinating all activities of the Contractor and his subcontractors, and keeping a safe job site.

I. Work Force - The Contractor shall at all times, when construction activities are conducted, have a substantial number of workers for each task to proceed expeditiously and without generating delay, for lack of man-power.

2.0 CONTRACTOR-FURNISHED MATERIAL AND EQUIPMENT

2.1 MATERIAL DELIVERIES

All material deliveries made under this contract shall be arranged for delivery to the Contractor's material staging area. This area shall be located as determined at the pre-construction conference. Materials shall be delivered to the jobsite in the manufacturer's original unopened packages, clearly marked with the manufacturer's name, brand name, and description of contents. Time limited materials shall be used before shelf life expires. Materials shall be stored in clean, dry areas. Storage temperatures shall be as specified by the manufacturer. A maximum of one day's supply of materials may be stored on the roof when distributed so as not to exceed the roof live load limit. These materials shall be kept dry and clean until application.

2.2 STORAGE AND PROTECTION

The Contractor, through the RE, shall secure from FAA all necessary clearances for storage areas on site, including any time limitations upon the use of such areas. The storage and protection of Contractor material and construction areas shall be the sole responsibility of the Contractor. The Contractor shall provide at their own expense all fencing, shelters and security personnel as may be necessary for the protection of the material and equipment, including in the case of inclement weather.

2.3 PERTINENT INFORMATION

Any pertinent information listed about the contractor-furnished material and equipment shall be submitted to the RE.

3.0 EXECUTION

3.1 WORK SEQUENCE

General: The Redmond ATCT is an active operational facility, which runs 7 days a week from 6am to 8pm; therefore, all work shall be coordinated and accomplished on a “Not to interfere with FAA operations” basis. Removal/Replacement of the air conditioning units from the equipment room will deprive the equipment room air conditioning, so work will be performed at a time determined seasonally acceptable for Air Traffic Controllers by the FAA. While the FAA will attempt to perform work during ideal weather conditions, the Contractor shall provide temporary cooling while air conditioners are off line if weather conditions deem it necessary.

Many of the steps of this project can be done simultaneously or in a different order. The following is one possible sequence of operations:

A. New Air Conditioners

1. Remove existing air conditioners, associated ductwork, ductwork supports, and roof curbs from the ATCT roof.
2. Install new roof curbs and create required roof penetrations to accommodate ducting.
3. Install new ducting, connections, and transitions to make-up new HVAC units to existing system.
4. Install new HVAC units onto new curbs.
5. Wire new air conditioning unit to disconnect switch and panel.
6. Check air conditioning unit economizer box operation.

B. Roof installation

1. Inspect for damaged underlayment of structure, and replace as required. Remove existing roofing materials that would jeopardize the new ATCT roof warranty. This includes but may not be limited to: The EPDM surface, wood covering, sheet metal flashing, and cutting, patching, and/or welding of the metal deck.
2. Special care is to be taken for all electric apparatuses and/or receptacles in proximity of the areas being worked on, including but not limited to GFI receptacles, and roof light fixtures. These items will be disabled during the time which they are being worked near.
3. Dispose of existing roofing materials in a manner that meets the guidelines outlined in this document.
4. Patch or replace the existing metal deck with material matching in weight, thickness, quality, and makeup, or with FAA approved material. If welding is performed, appropriate fire safety precautions shall be taken.
5. Installation of PVC roof must comply with the manufacturer's approved instructions except as otherwise specified. If discretion is required, the RE will be immediately contacted for their approval.
6. Roof material will be white, have 80mil thickness, be shown to have chemical resistance properties to jet fuel and kerosene, and installed per the manufacturers specifications. The Contractor must show certification by the manufacturer to perform installation for the specified PVC roofing system.
7. Install flashing to match the existing conditions with material matching in weight, thickness, quality, and makeup, or with FAA approved material. Flashing must also match existing color, or be white and have a matted texture to match the roof.
8. Any fasteners necessary for sheet-metal flashing shall be corrosion-resistant steel annular-ring type nails, or screws. Fasteners for anchoring the roofing membrane shall be as approved by the membrane manufacturer and identical to those used to obtain the wind uplift rating.
9. Roof will include raised surface mats on top of PVC roof installation. Mats will be of similar makeup and appearance to surface roof material.

C. Testing, Balancing, Patchwork, and Clean-up

1. Perform an operational check of all newly installed equipment.
2. Confirm the cooling capacity is 6-tons for each new air conditioning unit.
3. Confirm proper operation of economizer boxes/dampers.
4. Confirm compressor operation, staging, and controls of air conditioning units
5. Balance duct vents for even room air distribution.
6. Patch all existing and new building penetrations created or exposed under this project watertight.
7. Dispose of existing air conditioner units, ductwork, associated parts, and all other items not otherwise mentioned, which were removed or considered garbage under this project.
8. Clean up and restore the site grounds to its original condition after the work has been performed.

3.2 CONTRACTOR USE OF PREMISES

A. Use of the Site - Do not disturb site beyond the areas in which work is required.

B. Driveways and Entrances - Keep driveways and entrances serving the premises clear and available to the Government, the Government's employees, and emergency vehicles at all time. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Use of the Existing Building - Maintain the existing building in a watertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building during the construction period.

4.0 APPENDIX A

4.1 CHANGES TO ABOVE SECTIONS

A. Lightning Protection - Secure new HVAC equipment enclosures to perimeter aluminum conductor ring using existing conductor runs to old HVAC equipment per FAA specifications and remove any excess. If lug is replaced, use appropriate UL listed double bolted lug. Any additional conductor runs should match existing. Mating surfaces shall be cleaned properly to eliminate dirt, grease, oxides, nonconductive films, or other foreign materials. Paints and other coatings shall be removed to expose the base metal as part of surface preparation for bonding. Apply a compatible corrosion preventive or sealant after completion of bond.

B. Parking and Staging – Will be determined in advance of construction to accommodate schedule per FAA facility needs. Schedule will be based on temperature, and

considerations for time of sunlight amount of seasonal wind will also be factored. Crane work will be performed ad hours that accommodate FAA policies, and work that will affect any hearing capabilities of the tower should be expected to be performed at night.

C. HVAC Curb Removal – Existing curb will be acceptable for continued use. Contractor will inspect and make repairs as necessary to the curb to prevent future problems regarding support for the unit and fluid permeability. If existing curb is re-used, a curb adapter is required to mate the new units to the existing curbs. The new curb adapters shall not increase the height of the unit above the existing curb by more than 24".

D. New Roof Construction – It is allowable to leave the existing roof and encase it on the top with the aforementioned PVC, which will be attached to a rigid surface.

E. Raceway Cap – No painting will be done on the raceway cap along the edge of the parapet due to the concerns with communication antennas. However, re-caulking connections along with raceway cap will be performed as needed to ensure leak prevention alongside the new roof system.

F. Existing Units – Existing HVAC units model information is as follows:

1. Trane Model #: TCH075C300BC

G. Fire Protection – New smoke detector shall be wired to the new digital thermostats, provide a command for both units to shutdown in the event of an alarm.

END OF SECTION